Plant Pathology Circular No. 135
October 1973

Fla. Dept. Agr. & Consumer Serv.
Division of Plant Industry

PHYTOPHIHORA ROOT ROT AND WILT OF AZALEA

W. H. Ridings and J. J. McRitchie

Azaleas (Rhododendron spp.) are grown extensively in nurseries and are widespread in home plantings throughout central and north Florida. Several species of the fungus Phytophthora cause a subtle, yet devastating, root rot and wilt of azalea. P. cinnamoni Rands, considered the most important of the species (2), is distributed world-wide and attacks a diverse range of plants. At least 212 plant species represented by 117 genera and 48 families have been reported as hosts (1). In addition to azalea, other hosts common to Florida include various species of Pinus, Juniperus, Buxus, Quercus, Persea, Camellia, Cupressus, and Thuja.

SYMPTOMS. Discoloration and rotting of the feeder roots are the earliest symptoms of infection. However, a wilting of the leaves (fig. 1), progressing quickly to leaf drop and death of the plant, is the first visible above-ground symptom of root infection by Phytophthora.

DISEASE DEVELOPMENT. Moisture and temperature are the predominant factors affecting Phytophthora root rot development. Poor drainage of potting media results in excessive moisture favoring the development of P. cinnamoni. Zoospores are produced and easily disseminated by runoff and splashing water. Also, irrigation sources can become contaminated by runoff water containing zoospores. The fungus grows at temperatures ranging from 38 to 89 F (3 to 31 C) with the optimum temperature range at 77 to 82 F (25 to 28 C) (3).

Fig. 1. Phytophthora-infected Rhododendron indicum (L.) Sweet showing wilting of the leaves.

Contribution No. 359, Bureau of Plant Pathology.

CONTROL. Chemical control of Phytophthora root rot has been unsuccessful where the disease has become established (2). At present, the most suitable control methods are eradication and protection.

Eradication of the fungus in soil media can be achieved with a fumigant such as methyl bromide or with air-steam at 160 F for 1 hr (H. A. J. Hoitink, personal communication). Protective methods of control are outlined in detail by Hoitink and Schmitthenner (2). Briefly, these methods include propagation from healthy plants, rooting in a pathogen-free medium, and potting in a soil medium which favors good drainage of water. Potting media which provide approximately 20% air space and excellent drainage (2 inches of water drains in 1 hr or less) include a combination of Canadian or German sphagnum peat, perlite or styrofoam, and coarse sand (2).

Literature Cited

1. Crandall, B. S., and G. F. Gravatt. 1967. The distribution of Phytophthora cinnamoni. Ceiba 13(1):43-53.
2. Hoitink, H. A. J., and A. F. Schmitthenner. 1972. Control of Phytophthora root rot (wilt) of Rhododendron. Amer. Hort. 51(2):42-45.
3. Waterhouse, G. M., and J. M. Waterston. 1966. Phytophthora cinnamoni. CMI Descriptions of Pathogenic Fungi and Bacteria No. 113. Commonwealth Mycological Institute, Kew, Surrey, England. 2 p.